

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-5** rejected under 35 U.S.C. 103(a) as being unpatentable over Miya (Pub No. US 2003/0171118 A1), in view of Cheng et al. (Pub No. US 2004/0018846).

For **claim 1**, Miya suggests a packet communication method (a method for efficient transmission of high-speed packets, refer to [0131], lines 2-3) comprising the steps of:

establishing a connection between a mobile station and a controller device (see Fig. 2. Both of BTS1 and RNC in Fig. 1 are controllers);

receiving, at the controller device, a plurality of data packets in which respective qualities of service are set (see Fig. 1, and RNC has the scheduling functions for managing the transmission ... in accordance with the quality of communication services, see [0132], lines 1-6);

inputting, at the controller device, the plurality of data packets to queues corresponding to the respective qualities of service (RNC ... scheduling, see [0132], lines 1-2; and manage the order of packet transmission, see [0141], lines 3-4);

determining, at the controller device, a timing for taking out each of the plurality of data packets from the queues corresponding to the respective qualities of service of a received data packet, based on quality the respective qualities of service packet

(managing the transmission timing, see [0132], lines 1-2; and performing the transmission at the next transmission timing to mange the sequence of the packets without disorder or to receive the packets following the correct packet numbers, see [0143], lines 3-6; and in accordance with the quality of communication services, see [0132], lines 5-6); and

multiplexing (multiplexer in Fig. 1), at the controller device, each of the plurality of data packet packets taken from the queues at the determined timing (performing the transmission at the next transmission timing to mange the sequence of the packets without disorder or to receive the packets following the correct packet numbers, see [0143], lines 3-6).

However, Miya fails to specifically teach that the connection is a single layer 2 connection, and the data packet into a radio layer 2 protocol data unit of a fixed length.

Cheng et al. teach that the connection is a single layer 2 connection (see Fig. 2. Compare this figure and Applicant's Fig. 4, it is the same single layer 2 as claimed), and the data packet into a radio layer 2 protocol data unit (62 in Fig. 2) of a fixed length (Fig. 4 shows protocol data unit of a fixed length).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Miya with Cheng et al. to obtain the invention as specified, for more accurate control of the communication system and method.

For **claim 2**, Miya suggests a controller device (BTS1 and RNC –Fig. 1) comprising:

a connection establishing unit (both of BTS1 and RNC in Fig. 1) configured to establish with a mobile station (see Fig. 2);

a reception unit (RNC in Fig. 1) configured to receive a plurality of data packets in which respective qualities of service are set (see Fig. 1, and RNC has the scheduling functions for managing the transmission ... in accordance with the quality of communication services, see [0132], lines 1-6);

an input unit (RNC in Fig. 1) configured to input the plurality of data packets to queues corresponding to the respective qualities of service (scheduling ... in accordance with the quality of communication services, see [0132], lines 1-6; and manage the order of packet transmission, see [0141], lines 3-4);

a transmission timing determining unit (RNC in Fig. 1) configured to determine a transmission timing for taking out each of the plurality of data packets from the queues corresponding to the respective qualities of service of a received data packet, based on a quality the respective qualities of service (performing the transmission at the next transmission timing to mange the sequence of the packets without disorder or to receive the packets following the correct packet numbers, see [0143], lines 3-6; and in accordance with the quality of communication services, see [0132], lines 5-6); and

a multiplexing unit (multiplexer in Fig. 1) configured to multiplex, each of the plurality of data packets taken from the queues at the determined timing (managing the transmission timing, see [0132], lines 1-2).

However, Miya fails to specifically teach that the connection is a single layer 2 connection, and the data packet into a radio layer 2 protocol data unit of a fixed length.

Cheng et al. teach that the connection is a single layer 2 connection (see Fig. 2. Compare this figure and Applicant's Fig. 4, it is the same single layer 2 as claimed), and the data packet into a radio layer 2 protocol data unit (62 in Fig. 2) of a fixed length (Fig. 4 shows protocol data unit of a fixed length).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Miya with Cheng et al. to obtain the invention as specified, for more accurate control of the communication system and method.

For **claim 3**, Miya and Cheng et al. teach everything claimed as applied above (see claim 2). In addition, Miya teaches the controller device as set forth in claim 2 further comprising, a transmitting unit (121-Fig. 1) configured to transmit, by a transport technology, the radio layer 2 protocol data unit into which each of the plurality of data packets is multiplexed (Fig. 1. It is obvious that all packets are transmitted with scheduling and QoS).

For **claim 4**, it is similar to claim1 and 2 except for a mobile station. All functions are taught by Miya and Cheng. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Miya to include the functions in a mobile station.

3. **Claims 6-8** rejected under 35 U.S.C. 103(a) as being unpatentable over Fujino (Pub No. US 2003/0174689 A1), in view of Cheng et al. (Pub No. US 2004/0018846), and Miya (Pub No. US 2003/0171118 A1).

For **claim 6**, Fujino suggests a packet communication method (packet radio service, refer to [0002]) comprising:

establishing, at a mobile station, a connection (see Fig. 4);
establishing a plurality of tunneling connections (each radio network controller RNC constitutes a starting point and a terminal point of a GTP encapsulating using the GPRS tunneling protocol (GTP), refer to [0033], lines 3-5, and Fig. 8); and connection associated with the terminal address (subscriber data, [0011], line 2; destination table, [0034], lines 1-4; and Fig. 2) between a first controller device (RNC 15 in Fig. 4) and a second controller device (RNC 16 in Fig. 4).

However, Fujino fails to specifically teach that the connection is a layer 2 connection.

Cheng et al. teach that the connection is a layer 2 connection (refer to Fig. 2 for layer 2 indication).

Further, Fujino in view of Cheng, does not teach connections for respective qualities of services between a first controller device and a second controller device; receiving, at the first controller device, a plurality of data packets in which the respective qualities of service are set and which are transmitted from the mobile station; determining, at the first controller device, a quality of service which are included in each of the received plurality of data packets; and relaying, at the first controller device, each of the plurality of data packets to the second controller device through the determined tunneling connection.

Miya teaches connections for respective qualities of services, between a first

controller device (RNC in Fig. 2) and a second controller device (BTS in Fig. 2, or second RNC), and receiving and determining, at the first controller device, a plurality of data packets in which the respective qualities of service are set and which are transmitted from the mobile station (see Fig. 1, and RNC has the scheduling functions for managing the transmission ... in accordance with the quality of communication services, see [0132], lines 1-6); and relaying, at the first controller device, each of the plurality of data packets to the second controller device through the connection (see Fig. 2).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Fujino with Cheng et al. and Miya to obtain the invention as specified, for more accurate control and QoS of the communication system and method.

For **claim 7**, Fujino, Cheng et al., and Miya teach everything claimed as applied above (see claim 6). In addition, Fujino teaches the packet communication method as set forth in claim 6 further comprising the steps of:

transmitting, at the mobile station, a communication start request (Fig. 2, and for the mobile stations, see [0033], line 10 & lines 8-11);

transmitting, at the first controller device (RNC 15 in Fig. 4), a tunneling connection establishment request to the second controller device in accordance with the communication start request (each radio network controller RNC constitutes a starting point and a terminal point of a GTP encapsulating using the GPRS tunneling protocol (GTP), refer to [0033], lines 3-5);

establishing, at the second controller device (RNC 16 in Fig. 4), a tunneling connection with the first controller device in accordance with the tunneling connection establishment request ([0033], lines 3-5), and associating the established tunneling connection with the terminal address of the mobile station (subscriber data, [0011], line 2; destination table, [0034], lines 1-4; and Fig. 2); and
communicating the associated terminal address to the mobile station (Fig. 2, and [0034], lines 1-4).

For **claim 8**, it is a controller device (RNC in Fig. 4) claim which does tunneling connection establishing, data receiving, and relaying corresponding to method claim 6, therefore it is rejected for the same reason above.

Response to Amendment

Applicant's amendment, filed 7/17/2008 has been received and considered.

Response to Arguments

Applicant's arguments, filed 7/17/2008 have been fully considered but are moot.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WANDA Z. RUSSELL whose telephone number is (571)270-1796. The examiner can normally be reached on Monday-Thursday 9:00-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/

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Primary Examiner, Art Unit 2416

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Examiner, Art Unit 2416